

## REMARKS

This Amendment is in response to the Office Action dated February 10, 2005. In the Office Action, the Examiner rejected claims 1-3, 6, 7, 9-11, 17-21, and 25-27 under 35 U.S.C. § 102(e) as being anticipated by Palm, U.S. Patent No. 6,735,245 (hereinafter *Palm*). Claims 4, 5, 12-16, and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Palm* in view of Field et al., U.S. Patent No. 4,410,911.

Claims 1-3, and 10-21 are amended as shown above. Specifically, independent claims 1, 10, and 20 are amended to more clearly recite features of the claimed invention. Further, claim 3 has been amended to remove a typographical error. Claims 1-27 remain pending in the application. For the reasons set forth below, the Applicants respectfully request reconsideration and allowance of all pending claims.

### CLAIM REJECTIONS - 35 U.S.C. § 102

A claim is anticipated only if each and every element of the claim is found in a single reference. M.P.E.P § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). “The identical invention must be shown in as complete detail as is contained in the claim.” M.P.E.P. § 2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989)).

In the present Office Action, the Examiner rejected 1-3, 6, 7, 9-11, 17-21, and 25-27 under 35 U.S.C. § 102(e) as being anticipated by *Palm*. Relevant claims, including independent claims 1, 10, and 20 have been amended herein to identify that embodiments of the claimed invention pertain to detecting data channels within a cable broadband signal, such as a broadband signal transmitted over a Hybrid Fiber/Coax (HFC) cable system. For example, amended claim 1 now recites:

1. A method for identifying data channels within a cable broadband signal, comprising:

tuning a receiver of a cable modem to a first of a plurality of channels within a received cable broadband signal;

searching for a pilot tone within the tuned channel; and

updating one or more operating parameters of the cable modem to denote the tuned channel is a data channel if the pilot tone is detected. (Emphasis added)

As stated by its title, the *Palm* reference pertains to "Activation of multiple xDSL modems with channel probe." As stated in the Abstract, *Palm* discloses a,

Method and apparatus for enabling data communication. The quality of a communication channel is determined using line probing techniques. In addition, capabilities of the communication devices are exchanged between a central location and a remote location. Based upon the quality of the communication channel, and the capabilities of the communication channel, an appropriate communication standard is selected.

In further detail, *Palm* discloses techniques for determining capabilities of an xDSL communication channel that is employed for communication between a central location and a remote location using an xDSL signal. As stated in the attached Cisco reference,

Digital Subscriber Line (DSL) technology is a modem technology that uses existing twisted-pair telephone lines to transport high-bandwidth data, such as multimedia and video, to service subscribers. The term xDSL covers a number of similar yet competing forms of DSL technologies, including ADSL, SDSL, HDSL, HDSL-2, G.SHDSL, IDSL, and VDSL. xDSL is drawing significant attention from implementers and service providers because it promises to deliver high-bandwidth data rates to dispersed locations with relatively small changes to the existing telco infrastructure.

xDSL services are dedicated, point-to-point, public network access over twisted-pair copper wire on the local loop (last mile) between a network service provider's (NSP) central office and the customer site, or on local loops created either intrabuilding or intracampus. Currently, most DSL deployments are ADSL, mainly delivered to residential customers.

As stated in the first paragraph of the Summary of the Invention section,

... the overall purpose of the present invention is to develop a communication method, modem device and a data communication

system that detects various configurations, capabilities and limitations of a communication channel and associated equipment in order to determine a specific (xDSL) communication standard appropriate for the existing line conditions. To accomplish this goal, the invention employs several individual techniques as a system.

In support of the rejection of claim 1 in its original form, the Examiner states,

As to claim 1, Palm discloses a modem activation system, in which data communication is enabled through various line probing techniques used to determine the quality and capability of the transmission line, as well as the appropriate communication standard to be utilized. Through the use of a pilot tone, the system can determine whether a data channel is available. Once a pilot tone is detected, the system then begins to determine what transmission standard is to be used (updating modem parameters). (it is inherent that the modem of Palm's system be capable of first tuning a receiver to a channel in order to begin the line probing process). ... Therefore, Palm anticipates each and every limitation of claim 1.

The Applicant does not disagree with the characterization the Examiner makes above with respect to how *Palm's* system operates. However, the Applicant respectfully asserts that *Palm* does not teach or fairly suggest each and every element of the claims, either as originally-filed or as they now stand.

The purpose of the various embodiments of the present invention is to identify data channels from amongst multiple channels employed in a cable system. As stated in the Background section on page 3, lines 9-12, "Given the typical implementation of 6MHz channels over a spectrum of 91-857MHz, one of the problems cable modems have is identifying which of the over 125 channels in the broadband signal are data channels, and which are allocated to other programming (e.g., A/V) channels." Over the lifetime of a cable system, it is most likely that the operator will reassign use of various channels within the cable broadband signal bandwidth for different purposes. For example, it is common for a cable operator to reassign given cable programming, such as ESPN, Discovery Channel, etc., to a different cable channel (e.g., one of the over 125 channels discussed above).

Typical cable channel usage includes both analog channels (e.g., used to carry TV broadcast content in analog form), and digital channels (used to carry TV broadcast content in digital form, as well as carrying additional digital content such as the content used for displaying electronic program guides and the like). In addition to these types of channels, a portion of cable broadband signal channels are used as data channels via which data can be sent over cable system infrastructure using a cable modem. As with the analog and digital cable programming channels, the channels assigned for data channels may change over time. When such changes occur, it is advantageous for the cable modems to ascertain which channels are available as data channels as soon as practical so that those channels may be accessed for both uplink and downlink purposes. As discussed in the Background section of the present application, conventional techniques for ascertaining the data channels include a brute force scheme under which each of the channels is examined by demodulating the content to determine whether the channel is a data channel, which often requires over a minute to complete. (Consider that under a conventional approach, both a digital channel and data channel appear the same).

Under embodiments of the claimed invention, a pilot tone is added to the channels in the cable broadband signal used for data channels. This pilot tone, through appropriate techniques disclosed and claimed, can easily identify which channels include a pilot tone, and thus which channels are data channels. At the same time, the pilot tone does not interfere with the use of the data channels.

In sharp contrast, the *Palm* reference concerns xDSL channels to be employed in xDSL broadband signals. An xDSL broadband signal is clearly not equivalent to a cable broadband signal. Details of the format of xDSL signals under the carrierless amplitude/phase (CAP) system and under the more common discrete multitone (DMT) system are illustrated in the attached talkbroadband.com web page printout. While an xDSL broadband signal arguably carries voice information and data, the voice

information is always assigned to the “channel” from 0-4KHz, and the entire portion of the signal bandwidth above 4KHz is assigned to data channels under both the CAP and DMT schemes. Accordingly, there is no need to determine whether a given xDSL channel is a data channel or is not. If the channel bandwidth is >4KHz, it is a data channel. As a result, the pilot tone employed by *Palm* is not used to distinguish (i.e., identify) a data channel from a non-data channel in a broadband signal, as there would be no purpose served in using a pilot tone in this manner for an xDSL signal.

In view of the foregoing argument, it is clear that each and every element of the amended independent claims 1, 10, and 20 are not taught by the *Palm* reference. Accordingly, each of claims 1, 10, and 20 are patentable of the *Palm* reference. In addition, each of dependent claims 2-9, 22-29, and 21-27 is patentable over *Palm* for at least the same reasons as its respective base claim.

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, independent claims 1, 10, and 20 are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

*Charge Deposit Account*

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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Date: May 10, 2005

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In the Drawings

Please replace the original drawing sheet for Figures 7A and 7B with the attached replacement sheet. In the replacement sheet, the spelling of the term baseband in block 706 of Figure 7A has been corrected.